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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group: Art Unit 1754

Examiner: LANGEL WAYNE A

In re Application of

Serial No. 09/786,427

Filed: March 6, 2001

For: ZINC-MODIFIED COMPOSITE POLYBASIC SALT, METHOD OF PREPARING THE SAME AND USE THEREOF

DECLARATION UNDER RULE 132

I, the undersigned Madoka Minagawa, am a Japanese citizen residing c/o Mizusawa Industrial Chemicals, Ltd. at 13-6, Nihonbashi-Muromachi 1-chome, Chuo-ku, Tokyo, Japan.

In March 31st, 1994, I graduated from Hokkaido University.

In April 1st, 1994, I joined Mizusawa Industrial Chemicals, Ltd. and since then have been forwarding researches on additives for resins.

I am one of the inventors of the instant patent application Serial No. 09/786,427, and am well versed in the contents of the invention disclosed and claimed in the instant application.

In order to overcome the Examiner's rejection against the patentability of all claims of the instant application under 35 USC 102 or 103 based on Woltermann (USP'244) and Bhattachayya (USP'433), I have conducted the following experiments to prove the difference of the composite metal polybasic salt of the present invention from the compounds disclosed in the above references.

Experiment 1:

A hydrotalcite compound was prepared according to Example 1 of Woltermann (USP'244).

That is, 90 g of a zinc oxide slurry was prepared by adding zinc oxide to 50 g of deionized water, and to the slurry were added 308 ml of a 1M aqueous solution of $Al(NO_3)_3 \cdot 6H_2O$ as well as deionized water to adjust the pH to 3.8.

Then, the slurry was heated with stirring and was maintained at a temperature of 90℃ for 6 hours. The solid matter in the slurry was separated by filtration, and was washed with deionized water. After washing, 100 g of deionized water and 308 ml of the 1M aqueous solution of $Al(NO_3)_3 \cdot 6H_2O$ were added thereto to prepare a slurry again. To the slurry was added deionized water to adjust the pH to 3.8, which was, then, heated with stirring and was maintained at a temperature of 90℃ for 14 hours to obtain a very thick slurry.

The solid matter was separated from the thick slurry by filtration, repetitively washed with deionized water, and was dried at 110 to 120℃ for 8 hours to obtain a hydrotalcite compound in an amount of about 130 g.

An X-ray diffraction image of the hydrotalcite compound is shown in Fig. A together with that of the composite metal polybasic salt (the present invention) prepared according to Example 1 of this application.

Experiment 2:

A hydrotalcite compound was prepared according to Example 1 of Bhattachayya (USP'433).

That is, 72.47 g of $Cu(NO_3)_2 \cdot 6H_2O$ (0.3 mols), 52.4 g of $Zn(NO_3)_2 \cdot 6H_2O$ (0.2 mols) and 75.02 g of $Al_2(NO_3)_3 \cdot 9H_2O$ (0.2 mols) were added to 1000 ml of a dilute aqueous solution of ethanol to prepare a cationic aqueous solution.

Further, 56.00 g of NaOH (1.4 mols) and 15.98 g of Na_2CO_3 (0.15 mols) were dissolved in 1200 ml of water to prepare an anionic aqueous solution.

The cationic solution prepared first was added to the above anionic aqueous solution with stirring over a period of two hours. The pH after the end of the addition was 10.6. Then, the nitric acid was added until the pH was 8.25, and the obtained slurry was heated at 85℃ and was maintained in a nitrogen gas atmosphere for 14 hours with stirring.

Then, the precipitated gel-like substance was separated by filtration, washed with diluted water three times (water was used in an amount of 2 liters in each washing), and was dried at 70℃ for 14 hours under a reduced pressure to obtain a hydrotalcite compound in an amount of about 60 g.

An X-ray diffraction image of the obtained hydrotalcite compound is shown in Fig. B together with that of the composite metal polybasic salt (present invention) prepared according to Example 1 of this application.

Further, the above hydrotalcite compound was dispersed in 2000 ml of deionized water, was added into 2000 ml of sulfuric acid of a concentration of 0.5% by weight, and was maintained for 2 hours with stirring, so that the nitric acid radicals were ion-exchanged with the sulfuric acid radicals, followed by filtration, washing with water and drying in the same manner as described above to obtain an SO_4-exchanged compound. An X-ray diffraction image of this compound, too, is shown in Fig. B.

Consideration:

As will be understood from the X-ray diffraction images of Figs. A and B, both the hydrotalcite compound disclosed in Example 1 of Woltermann and the hydrotalcite compound disclosed in Example 1 of Bhattachayya have a plurality of peaks in a region of 2θ = 33 to 55 degrees, and are obviously different from the composite metal polybasic salt of the invention of this application that has a single peak in the above region.

Both the hydrotalcite compounds disclosed in Example 1 of Woltermann and in Example 1 of Bhattachayya have nitric acid radicals. As will be understood from Fig. B, the compounds of which the nitric acid radicals are ion-exchanged with sulfuric acid radicals, too, exhibit a plurality of peaks in the region of 2θ = 33 to 55 degrees, and are obviously different from the compound of the present invention.

I, the undersigned Madoka Minagawa, state that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: January 6, 2004

Madoka Minagawa

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Fig. A

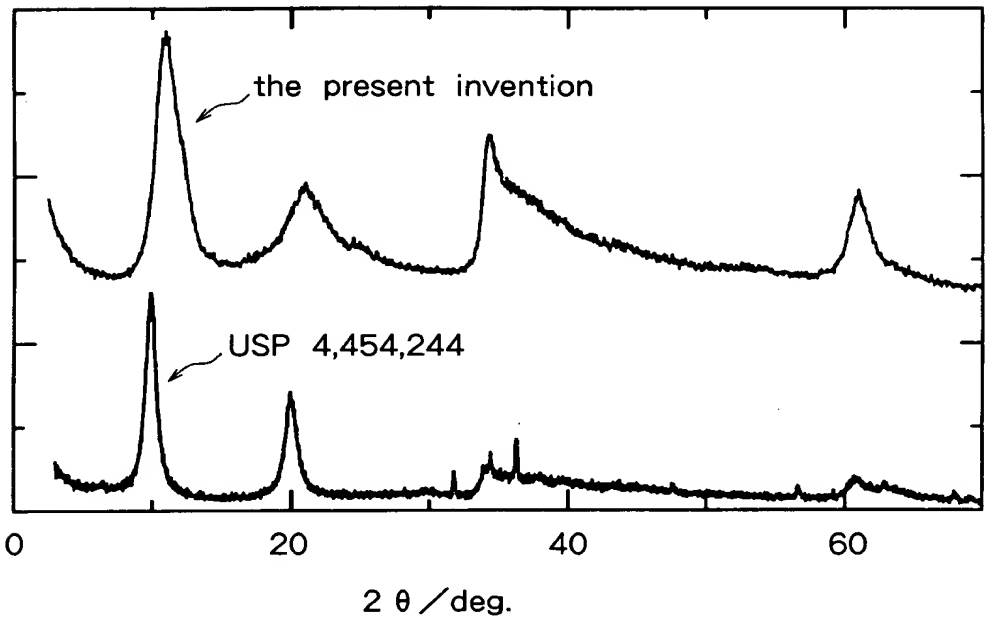

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Fig. B